

Standard 8.0: SUSTAINABILITY

The student will make decisions that demonstrate understanding of natural communities and the ecological, economic, political, and social systems of human communities, and examine how their personal and collective actions affect the sustainability of these interrelated systems.

Topic A. Intergenerational Responsibility

Indicator 1: Understand and apply the basic concept of sustainability to natural and human communities.

- a. Define and explain the basic concept of sustainability as meeting present needs without compromising the ability of future generations to meet their needs.
- b. List and analyze their changing roles and responsibilities in their family, their school, and their community -- now and into the future.
- c. Identify natural and agricultural resources and where they come from (e.g.: wildlife, fish, plant, rock, water, soil, minerals, sunlight, and air), and distinguish between natural resources and things made by humans.
- d. Cite examples of resources that will regenerate within a human lifetime and other resources that are finite.
- e. Identify local plant and animal species and describe how each species is dependent upon another.
- f. Recognize and explain that the maximum population that a habitat can maintain depends on the productivity of the habitat and other factors, which are constantly changing.
- g. Using standard ecological footprint calculation models, determine the impact of their lifestyle decisions, such as transportation, food, personal consumption of products, and housing choices.
- h. Research the use of a natural resource in the local environment, and identify the social, economic, and political mechanisms that impinge upon use of the resource.

Topic B. Interconnectedness of Systems

Indicator 1. Recognize the concept of sustainability as a dynamic condition characterized by the interdependency among ecological, economic, and social systems and how these interconnected systems affect individual and societal well-being.

- a. Identify and describe the ecological, economic, political, and social systems in their community.
- b. Explain how natural and built communities are part of larger systems (e.g. farms as part of the regional watershed and food systems for cities, a mine as part of the regional economy) and the interrelationships that exist among those systems.
- c. Describe and explain how sustainable resource use today can lead to basic human needs (e.g.: food, water, energy and shelter) being met by future generations.
- d. Identify and describe an unsustainable system (such as a fossil fuel energy system) and use sustainability principles to redesign it.
- e. Investigate designs and systems in nature that can serve as models for human-created sustainable products, services, and systems.
- f. Propose a design for the continuous cycling of biological and technical nutrients for a cradle-to-cradle designed product or system.

Topic C: Influence of Economic Systems on Sustainability

Indicator 1. Investigate and make decisions that demonstrate understanding of how the dynamics of economic systems affect the sustainability of ecological and social systems.

- a. Use United Nations Millennium Development Goals to investigate causes and potential solutions to poverty in the local community, the U.S. and around the world.
- b. Choose an ecosystem and list the existing and potential services (products and processes) that it provides to humans.
- c. Investigate, use, and compare alternative indicators of social and economic progress (e.g. Genuine Progress Indicator) with traditional economic indicators (e.g. Gross Domestic Product) to determine the health and well-being of their local community.
- d. Describe the pros and cons of globalization and how a globalized world contributes to and detracts from sustainability.
- e. Using the concept of True (or Full) Cost Accounting, choose a product or service and list its hidden social and environmental costs.
- f. Analyze a business operation in terms of its environmental, economic, and social/cultural factors.
- g. Investigate a micro-credit organization's operations in a community and analyze how that operation contributes to the community's long-term sustainability.
- h. Compare the distribution of resources between two or more economic classes, and ethnic and cultural groups.

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- i. Analyze the use of a local natural resource (such as lumber, fish, and minerals) and consider the resources' ability or inability to regenerate at a sustainable level.
- j. Survey their own household energy uses, explore opportunities for increased energy efficiency and conservation, and calculate potential savings over time.
- k. Explain how a specific ecological region provides environmental, social and economic value. (For example, a healthy rain forest as a storehouse of historical, current, and potential medicines of tremendous social and economic value.)
- l. Analyze local, national and global food systems, including Farm-to-School programs, demonstrating an understanding of the differences between industrial farming, factory farming, family farming, organic, and non-organic farming.
- m. Study the history of, and debates over, the U.S. Farm Bill, and related concepts including protectionism, free trade, and fair trade in the context of food

Topic D: Influence of Social and Cultural Systems on Sustainability

Indicator 1. Investigate and make decisions that demonstrate understanding of how the dynamics of social and cultural systems affect the sustainability of ecological and economic systems.

- a. Compare, analyze and discuss the 1948 United Nations Universal Declaration of Human Rights, comparing this document to the United States Bill of Rights.
- b. Research a non-profit group or non-governmental organization whose mission is to forward social justice, economic opportunity, or civil rights for a particular group of people, identifying the organization's mission and key programs and outcomes.
- c. Research and compare the goals and programs of three multilateral organizations, one economic (such as OPEC: Organization of the Petroleum Exporting Countries), one environmental (such as Greenpeace: a global, public interest group), and one social (such as UNESCO, the United Nations Educational, Scientific and Cultural Organization).
- d. Research and compare the goals, programs, and/or outcome documents or action plans that resulted from three United Nations international summit processes, global conferences, or conventions and treaties – along with the proposals from the accompanying civil society forums.
- e. Examine strategies and efforts to curb malaria or other diseases, comparing the economic and health efficacy of preventative measures with pharmaceutical research and treatment efforts.
- f. Demonstrate understanding of how authority is exercised in different countries under different forms of government.
- g. Explore their own cultural identity and the identity of their peers and people in their community and examine the different views and values that each culture brings to the community.
- h. Consider an issue or challenge related to sustainability through a variety of lenses or perspectives and explain how approaching that issue or challenge from different perspectives may result in different decisions and outcomes.
- i. Compare the distribution of a common resource (e.g. money, food) of different groups of people in their own community, region, nation, or world and explain how this resource distribution affects sustainability.
- j. Investigate how the growth or decline of a human population affects a community's social, economic, and environmental sustainability, including factors that may contribute to unsustainable population growth.
- k. Define indicators that contribute to their own and their community's quality of life and assess their and their community's quality of life based on these indicators.
- l. Explain how education can impact the sustainable practices of an individual and community.

Topic E: Limits of Ecological Systems

Indicator 1. Investigate and make decisions that demonstrate understanding of how the dynamics of ecological systems affect the sustainability of social, cultural systems and economic systems.

- a. Collect data in order to investigate and analyze how personal consumption patterns affect the sustainability of natural and human communities.
- b. Trace the production of an item, such as food, clothing or other item, and determine the true ecological cost of production.
- c. Design a product or service to address a problem or issue using one or more characteristics from a plant or animal.
- d. Identify local and global "commons" and explain the concept of *Tragedy of the Commons*.
- e. Identify a local environmental justice issue (such as the location of toxic waste facility in the neighborhood) and propose possible solutions.
- f. Develop a sustainable land-use plan for an under-developed community property or place that provides for a healthy environment, economy, and society.
- g. Identify the natural capital of a local or global resource and create a graph depicting their relative worth.

Topic F. Action Component

Indicator 1. Apply knowledge and skills to investigate and implement personal and collective decisions and actions on an individual, local community, national, and global levels in order to achieve sustainability.

- a. Identify and implement a personal sustainability action plan.
- b. Identify actions that can be taken as individuals and those that require the involvement of other people, organizations, and government.
- c. Complete an ecological footprint assessment, or product trail assessment, of a product or service then identify sustainable alternate products or strategies.
- d. Communicate ideas in a discussion or debate about a topic that addresses local and/or global sustainability issues.
- e. Describe the difference between a local and global problem, how the problems might be connected and how a potential solution to each could require different actions at different levels, ranging from local to global.
- f. Develop a strategy for fair distribution of a limited amount of energy available within a community.
- g. Develop a decision-making strategy for developing a plan to eliminate use of unsustainable energy sources and unnecessary consumption of goods by your household. Or if your household has already reached these objectives, document how it was achieved.
- h. Develop a personal and household plan for the fair consumption of goods based on your ecological footprint assessment.